International Journal of Innovative Research and Advanced Studies (IJIRAS)
Volume 6 Issue 5, May 2019

ISSN: 2394-4404

Effects Of Integrating Sexual And Reproductive Health Services And Prevention Of Mother To Child Program On Vertical Transmission Among HIV Positive Mothers In Nairobi County, Kenya

Ndonga EM

School of Public Health, Mt Kenya University, Thika, Kenya

Matu MN

East, Central and Southern African Health, Community (ECSA-HC), Arusha, Tanzania

Abstract:

Introduction: In the year 2012, UNAIDS report indicated that 3.3 million children less than 15 years contracted HIV with over 3 million of these infections occurring in Africa. Most children infected with Human Immunodeficiency Virus (HIV) acquire the infection through mother-to-child transmission (MTCT), which occurs during pregnancy, labour and delivery or during breastfeeding. Studies to improve prevention of Mother to Child Transmission (PMTCT) suggest that, in order for interventions to be more effective in reducing MTCT, they should be delivered via decentralized, community-based and longitudinal programs. Recently, there has been increasing awareness and discussion of the possible benefits of linkages between Sexual and Reproductive Health (SRH) and PMTCT programs at the policy, systems and service delivery levels. However, the evidence for the efficacy of these linkages has not been systematically assessed.

Objectives: The study assessed the role of integrated SRH services in MTCT of HIV outcomes among HIV positive postnatal mothers at selected health facilities in Nairobi County.

Methods: Mixed methods study design was used which employed qualitative and quantitative techniques of data collection. The study was conducted in Nairobi County purposively selected due to its high prevalence of HIV and its cosmopolitan nature. A three stage cluster sampling strategy was used to recruit study participants. The study recruited 340 HIV positive postnatal mothers with children of known status in both integrated and non-integrated facilities. A structured questionnaire and a focus group discussion guide were used to obtain information from postnatal (PNC) mothers on client satisfaction on perceived quality of counselling sessions, pregnancy outcome, knowledge on MTCT/PMTCT, stigma and discrimination. PNC registers were used to ascertain the status of the children. Key informants interview guides were used to obtain information from PMTCT program staff, managers and hospital administrators on hindrances that occur during integration of PMTCT with SRH services. Quantitative data was analyzed using SPSS and Excel for qualitative data. For continuous data, distribution characteristics were confirmed using Kolmogorov-Sminorf test and Exploratory Data Analysis (EDA). A comparison between integrated and non-integrated facilities was carried out using Students T-test for normally distributed continuous variables and Mann-Whitney U test for skewed continuous variables. Chi-square analyzed categorical variables and where applicable Fisher's Exact probability test was used. P-value of less than 0.05 was considered significant.

Results: The study findings showed that overall prevalence of HIV among the exposed children was 1.5%, 1.8% from integrated and 1.2% from non-integrated facilities, (P=0.652). Counsellors' approach and attitude on client satisfaction in counselling services scored the highest with 97.8% from integrated and 98.8% from non-integrated facilities, (P=0.6804). Knowledge on MTCT and PMTCT in integrated facilities was 93.5% and 94.1% in non-integrated facilities, (P=0.822). Lack of partner support, stigma and discrimination were the main barriers to PMTCT uptake. High workload and inadequate training were the main barriers to PMTCT integration with SRH services. Integration of PMTCT and SRH increased services uptake.

Conclusion: The study recommends specialized training and adequate staffing in PMTCT and SRH programs to facilitate integration of PMTCT and SRH services with the aim of improving quality of care. Projects targeting male partners should be initiated within PMTCT programs to enhance partner support and participation. Peer support initiatives within PMTCT program should also be facilitated to help reduce stigma among PMTCT clients.

I. BACKGROUND INFORMATION

HIV infection is a significant global source of childhood morbidity and mortality, and mother-to-child transmission is the major mode of infection. Research over the past two decades has shown improved understanding of the pathogenesis of MTCT and pediatric HIV infection, leading to the development of effective preventive and therapeutic

strategies **(**Katherine, 2008). According to UNAIDS (2012), 3.3 million children less than 15 years contracted HIV, mainly through MTCT with over 3 million of these infections occurring in Africa. In Kenya the prevalence of HIV in general population by the year 2012 was 5.6% and 0.9% in children. Most HIV-infected children acquire the infection through mother-to-child transmission (MTCT), which can occur during pregnancy, labour and delivery or during breastfeeding (Abiodun *et al.*, 2007).

Millennium Development Goals (MDGs) on reducing child mortality rates, improving maternal health and combating HIV/AIDS, malaria, and other diseases will not be achieved without universal access to both sexual and reproductive health services and HIV/AIDS prevention, treatment, care and support (KNBS, 2010). Since 2002, PMTCT programs have been offered as a vertical program hindering access to services due to stigma and inadequate health personnel in the facilities (NASCOP, 2012). Recently, there has been increasing awareness and discussion of the possible benefits of linkages between SRH and PMTCT programs at the policy, systems and service delivery levels to improve uptake. However, there has been limited information on whether PMTCT services when integrated with other SRH services would impact the prevalence of HIV infection among young infants (Nduati *et al*., 2014). Evidence for the efficacy of these linkages has not been systematically assessed (Caitlin *et al.*, 2010*).* The study assessed the role of integrated sexual and reproductive health services on Mother to Child Transmission of HIV outcomes among HIV postnatal mothers at selected health facilities in Nairobi County.

Studies on rapid and effective scale-up of PMTCT in low-income countries recommend integration of PMTCT services with programs targeting women and children as a key strategy to achieve equitable and universal access to health (WHO/UNAIDS/UNICEF, 2010). While there is consensus on the need of integration of SRH and PMTCT services, a range of inter-related factors at policy and service-delivery levels are identified as challenges to delivering integrated care. At the policy level, there is lack of policy guidance on integrated care, under-funding of SRH program, program territorialism and weak referral systems. At the service level, factors that may hinder integration are high client load, staff shortage, insufficient training and skills in SRH and PMTCT, resistance to change and inadequate monitoring and evaluation systems. The study assessed the effects of integrating PMTCT and SRH services in Nairobi County which has the highest HIV and AIDS burden with 199,100 PLWH and with 13510 new infections annually (NASCOP, 2012). Results of the study will inform current and new initiatives aimed at increasing PMTCT coverage and help focus funding on the best modalities for delivering PMTCT interventions.

II. METHODS

STUDY DESIGN: Descriptive comparative study employing mixed methods of data collection mainly qualitative and quantitative techniques.

STUDY AREA: The study was conducted in Nairobi County in Kenya which is the most populated capital city in East Africa with estimated population of about 3.5 million and with HIV prevalence of 7% (NASCOP, 2012). Further, the county is a cosmopolitan environment with people of different socio-economic background.

STUDY POPULATION: The study population comprised of HIV positive postnatal mothers, PMTCT program staff/ managers and hospital administrators from the selected integrated and non-integrated facilities.

SAMPLE SIZE DETERMINATION: Data was collected from 340 participants

DATA COLLECTION TOOLS: Detailed questionnaire, Key informants interviews guide and Focus group discussion guide

Ethical Considerations; The study was approved by KNH/UON Ethical Review Committee (ERC) (KNH-ERC/A/238)

III. RESULTS

PREVALENCE OF HIV: A total of 340 HIV positive post-natal participants and their exposed children attending PMTCT services were enrolled into the study with 170 participants each from integrated and non-integrated facilities. The mean age of participants in integrated facilities was 31.21 years (SD; 5.18) and 29.74 years (SD; 5.77) in non-integrated facilities. The median age of the children in non-integrated facilities was 10 months (IQR; 1 - 92) and 12 months (IQR; 1-61) in integrated facilities. There was no significant difference in the age of the participants from integrated and non-integrated facilities (P=0.6031) but there was a significant difference in the age of the children enrolled from the two types of facilities (P=0.0283; Table 1).

	Median	IQR	Mean	SD	P-value
Age of the child (months)*					
Integrated facilities	12	1 - 61	12.9	9.9	0.0283
Non-integrated facilities	10	1 - 92	14.7	14.7	
Age of the mother (years)**					
Integrated facilities	31	18-41	31.21	5.18	0.6031
Non-integrated facilities	29	18-44	29.74	5.77	

**P-value calculated using Mann-Whitney U test; **P-value calculated using student's t-test; IQR-Inter-quartile range*

Table 1: Distribution of study subjects by age in integrated and non-integrated facilities

DEMOGRAPHIC CHARACTERISTICS: Majority of the families were low income earners with 212 (62.3%) getting a monthly income of $133 and below. Participants from non-integrated facilities were the majority 129 (83.8%) in the low income category compared to 83 (50.6%) from integrated. The difference was significant (P<0.001; Table 4.2). The main source of income among participants from integrated facilities was self-employment 87 (52.8%) while casual employment was the main source of income for participants from non-integrated facilities 78 (48.1%). There was a significant difference in the sources of income (P=0.03; Table 2).

Characteristics	Facility type: Integrated n(%)	Facility type: Non integrated n(%)	P - value
Family Income (USD)			
<133	83(50.6)	129(83.8)	
134 - 400	56(34.1)	21(13.6)	<0.001
>401	25(15.3)	4(2.6)	
Sources of income			
Business/self employment	87(52.8)	73(45.1)	
Casual	55(33.3)	78(48.1)	0.003
Permanent job	23(13.9)	11(6.8)	
Level of education			
Never gone to school	0	12(7.2)	
Primary	51(30.4)	85(50.9)	<0.001
Secondary	73(43.5)	48(28.7)	
College/university	44(26.2)	22(13.2)	
Marital status			
Single*	33(20.9)	43(26.9)	0.7518
Married	125(79.1)	117(73.1)	
Religion			
Christian	166(97.6)	151(91.5)	0.0288
Muslim and others **	4(2.4)	12(8.5)	

** The category included divorced, separated and widowed; ** included Hindu and Buddhist; P- value calculated using Chi-square test; Exchange rate was 1$ = Kshs 75.2*

Table 1: Demographic characteristics of the study participants

Level of education among the participants from integrated facilities was significantly higher compared to participants from non-integrated facilities (P <0.001). Seventy three (43.5%) participants among those who visited integrated facilities had secondary level of education while majority of participants from non-integrated facilities had primary school level of education, 85 (50.9%) and 12 (7.2%) had never attended formal education (Table 2).

Married PMTCT participants were the majority in this study with 125 (79.1%) attending integrated facilities and 117 (73.1%) attending non-integrated facilities. There was no significant difference in marital status of participants attending integrated and non-integrated facilities (P= 0.317). Majority of the PMTCT participants were Christians with 166 (97.6%) from integrated facilities and 151 (91.5%) non-integrated facilities. There was a significant difference in religious affiliation of the study participants in integrated and non-integrated facilities (P= 0.019; Table 2)

PREVALENCE OF HIV IN CHILDREN BORN OF HIV POSITIVE MOTHERS

Clinical records were reviewed to ascertain the HIV status among the 340 HIV exposed children conducted using Polymerase Chain Reaction (PCR). Five (1.5%) of the children were HIV positive with 3 (1.8%) from integrated facilities and 2 (1.2%) from non-integrated facilities. There was no significant difference in prevalence in the HIV positive children between integrated and non-integrated facilities (P=0.652; Table 3).

Majority of the participants in both types of the facilities knew the HIV status of their children with exception of 11 (6.7%) and 5 (3.0%) from non-integrated and integrated facilities respectively. There was no significant difference in the mother's awareness of children's HIV status among the participants from the integrated and non-integrated study facilities (P=0.652; Table 3).

Variables	Integrated facility n (%)	Non-Integrated facility n (%)	P Value
Mothers response on status of child			
HIV +ve	4(2.4)	1(0.6)	0.126
HIV –Ve	157(94.6)	151(92.6)	
I don't know	5(3.0)	11(6.7)	
PCR Test*			
HIV +ve	3(1.5)	2(1.2)	0.652
HIV –Ve	167(98.2)	168(98.8)	

*PCR- Polymerase Chain Reaction; P-Value calculated using Chi-square test; *Confirmatory test for HIV especially in children below the age of 18 months*

Table 2: Prevalence of HIV infection in children born of HIV +ve mothers

Among the five children who were HIV positive by PCR, 2 (40%) of the participants correctly identified them as HIV positive and 3 (60%) of the participants of HIV positive children incorrectly identified the status of their children as HIV negative. Majority, 305 (98.1%) out of 311 identified their children as HIV negative had tested using PCR test

Various factors may influence the participant's knowledge on the status of her child. More participants 161 (53%) in the age category 30 years and above, with higher education 169 (56.5%), married 212 (75.2%) and attended integrated facilities 157 (51.6%) correctly identified HIV status of their children. Although these factors seemed to have contributed to the participants responses, they were not statistically significant (P>0.05; Table 4).

Variables	HIV status of the child: Correct response n(%)	HIV status of the child: Incorrect response n(%)	P value
Age			
30 years and below	143(47)	18(50)	
31 years and above	161(53)	18(50)	0.737
Education			
Lower	130(43.5)	18(50)	
Higher	169(56.5)	18(50)	0.457
Marital Status			
Married	212(75.2)	30(83.3)	
Not married	70(24.8)	6(16.7)	0.28
Facility type			
Integrated	157(51.6)	13(36.1)	
Non integrated	147(48.4)	23(63.9)	0.078

Lower education- illiterate up to primary; Higher education- secondary, college and university; Not married- single, divorced, separated and widowed; Chi-square test used to calculate P-Value.

Table 3: Factors affecting HIV status of the child

KNOWLEDGE ON PMTCT AND MTCT AMONG HIV INFECTED MOTHERS ATTENDING PNC

Participants knowledge on transmission of HIV from Mother to child was assessed with majority participants correctly identifying that HIV could be transmitted from the

mother to the child, 159 (93.5%) from integrated and 160 (94.1%) from non-integrated facilities. Majority of the participants from non-integrated facilities correctly reported that transmission could occur during labour, 134 (78.8%), delivery, 153 (90%), and during breast feeding 154 (90.6%) compared to participants from integrated facilities who reported that transmission could occur during labour 72 (42.4%) delivery 124 (72.9%) and during breast feeding 89 (52.4%). Significantly more participants from non-integrated facilities responded correctly on mother to child transmission of HIV through labour, delivery and breastfeeding (P<0.001, Table 4.5). Four (2.4%) participants from integrated facilities wrongly indicated that HIV could also be transmitted through holding the baby while none of the participants from the non-integrated facilities gave this incorrect response.

In Focus Group Discussion (FGD), participants elaborated on the various mechanisms through which HIV viruses could be transmitted from the mother to the child. They correctly identified transmission routes such as unprotected sex, mixed feeding, home delivery especially by a Traditional Birth Attendant (TBA), cultural practices like pressuring the tongue using ash to elevate milk teeth and inconsistency in taking ART.

Knowledge on PMTCT was assessed. Giving ARVs, exclusive breastfeeding and avoidance of breast feeding were answered correctly by the majority of participants from non-integrated facilities, 161 (94.7%), 142 (83.5%) and 102 (60%) on the three preventive methods respectively. There was significant difference between participants in integrated and non-integrated facilities in the response on the use of ARVs and exclusive breastfeeding (P< 0.001) and breastfeeding (P=0.04) in prevention of MTCT. There was no significance difference in the response on application of caesarean section in prevention of MTCT among participants from integrated and non-integrated facilities (P=0.906; Table 5).

Variables	Integrated n(%) n=170	Non integrated n(%) n=170	P value
Mother can pass the virus to her child	159 (93.5)	160 (94.1)	0.822
During labour	72 (42.4)	134 (78.8)	<0.001
During delivery	124 (72.9)	153 (90)	<0.001
Breast feeding	89 (52.4)	154 (90.6)	<0.001
Holding the baby	4 (2.4)	0 (0)	0.044
Mother can prevent her child from acquisition of the virus			
Giving the mother ARVs	135 (79.4)	161 (94.7)	<0.001
Caesarean section delivery	51 (30.0)	52 (30.6)	0.906
Exclusive breastfeeding	107 (62.9)	142 (83.5)	<0.001
Not breast feeding the baby	50 (29.4)	68 (40.0)	0.04

P-values was calculated using Chi-square test; ARVs - Antiretroviral drugs

Table 4: Knowledge on MTCT of HIV and PMTCT among the HIV infected mothers attending PNC

In the FGD, majority of participants agreed that they were persuaded to ensure that their babies were delivered free of HIV. They mentioned various ways in which transmission of HIV could be prevented including use of prophylaxis, early diagnosis using PCR for the babies, exclusive breastfeeding, avoiding substitution of ART with traditional medicine, proper nutrition, protected sex, consistency in attending ANC and PNC clinic and delivery in the hospital. One mother was quoted saying '*My motivation is to have a healthy baby free from HIV virus to escape the blame from the babies when they grow up and the community, I want to be the role model to those participants who are newly diagnosed with HIV'.*

Knowledge on MTCT and PMTCT were among the factors that influenced knowledge on knowing the status of their children. Out of the 20 (6.4%) participants who disagreed that the mother can transmit HIV virus to the child, only 1 (3%) gave incorrect response on identification of HIV status of her child. Holding the baby was incorrectly identified as one of the methods a mother can transmit the virus to the child by 4 (1.3%) participants and among these none of them gave incorrect results of their children. There was no significant difference in the responses on the methods of transmission among the participants from integrated and non-integrated facilities (P>0.05, Table 4.6). Knowledge on PMTCT and various ways of preventing transmission of HIV to the children were assessed. Majority 224 (73.7%) of the participants did not identify exclusive breastfeeding as one PMTCT method. Responses on the various methods of PMTCT like giving participants ARVs, Caesarean section delivery, exclusive breastfeeding and not breastfeeding the baby had no significant difference on correct identification of the true HIV status of the child (P>0.05; Table 6).

Variables	Correct response n (%) n=304	Incorrect response n (%) n=36	P value
Mother can transmit HIV virus to the child	284(93.4)	35(97)	0.37
During labour	184(60.5)	22(61.1)	0.946
During delivery	248(81.6)	29(80.6)	0.881
Breast feeding	213(70.1)	30(83.3)	0.096
Holding the baby	4(1.3)	0	0.489
Mother can prevent her child from acquisition of the virus			
Giving the mother ARVs	264(86.8)	32(88.9)	0.729
Caesarean section delivery	92(30.3)	11(30.6)	0.971
Exclusive breastfeeding	80(26.3)	10(21.7)	0.86
Not breast feeding the baby	102(33.6)	16(44.4)	0.194

P-Value calculated using Chi-square test

Table 5: Knowledge of MTCT and PMTCT on HIV status of the child

ANTENATAL AND POSTNATAL ATTENDANCE AMONG HIV INFECTED MOTHERS

Participants were assessed on antenatal and post natal attendance during pregnancy and post delivery period. Majority of the participants 166 (48.8%) attended ANC more than 4 times with only 16 (4.7%) attending once (Figure 4.3). Majority 227 (66.8%) of the participants had monthly attendance of postnatal clinic (Figure 1).

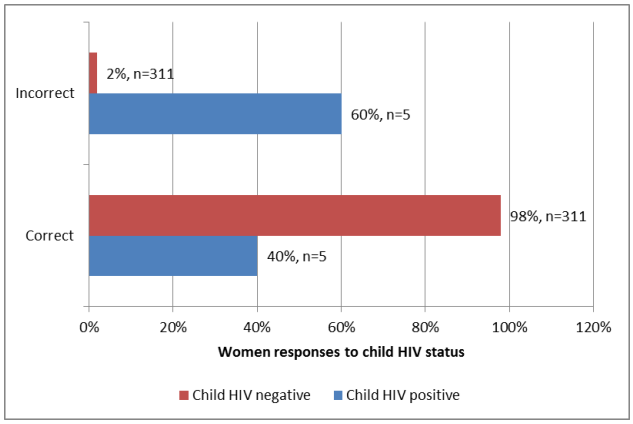

Figure 1: Correct and incorrect HIV status of child by the mothers and verified by PCR

Majority 166 (97.6%) of participants from integrated and non-integrated facilities attended at least one counselling session during their ANC and PNC visits. There was no significant difference in attendance between the participants in the two types of facilities (P=0.496; Table 7). Counselling topics were listed by the participants as follows:- HIV testing, PMTCT, infant feeding options, proper nutrition, prophylaxis administration, condom use, partners testing, client support and discordance. Participants reported that the knowledge obtained from the sessions was applicable in their decision making. Participants form non-integrated facilities reported relevance in the topics they covered in counselling sessions (P<0.001, Table 7).

Session topics	Integrated (n) % n=170	Non integrated (n) % n=168	P- Value
Mothers that attended counselling	169 (99.4)	166 (97.6)	P=0496
Counselling on HIV testing.	109 (64.1)	158 (92.9)	<0.001
PMTCT	63 (37.1)	122 (71.8)	<0.001
Infant feeding options	115 (67.6)	157 (92.4)	<0.001
Nutrition	79 (46.6)	148 (87.1)	<0.001
Prophylaxis and ARV administration	82 (48.2)	155 (91.2)	<0.001
Condom use	81 (47.6)	153 (90.0)	<0.001
Partner testing	73 (42.9)	149 (87.6)	<0.001
Support	41 (24.1)	71 (41.8)	<0.001
Discordance	35 (20.6)	91 (53.5)	<0.001

P-values calculated using Chi-square test

Table 6: Participants perception of the relevance of topics discussed during PMTCT counselling

CLIENT SATISFACTION ON COUNSELLING AND TESTING AMONG THE HIV INFECTED PNC MOTHERS

The clients provided an evaluation of the health facility service delivery based on their own experiences. The satisfaction was rated using a 5 level likert scale ranging from 1 for most satisfied to 5 for least satisfied. The satisfaction on counselling services was categorized in three groups such as convenience of the client to the services, time spent by the client and counselor approach during counselling sessions.

CLIENT CONVENIENCE ON SERVICE DELIVERY

Participants were assessed on accessibility and distance to the clinic, flexibility of the clinic working hours and if they had somewhere to sit in the clinic as they waited for services. They were also questioned on their opinion regarding the convenience of PMTCT services offered under one roof together with SRH services. Participants were in agreement that they had a place to sit while waiting for the services, 165 (98.8%) and 164 (98.7%) integrated and non-integrated facilities respectively. Majority of the participants reported that there was flexibility of clinic in terms of opening and closing hours that was accommodative to their other responsibilities, 164 (97.6%) from integrated and 164 (99.4%) from non-integrated facilities. Majority of the participants attending clinic from integrated facilities disagreed that the distance to the clinic was reasonable 110 (64.6%) and that the facility was accessible 113 (66.3%) compared to those who attended non-integrated facilities who agreed that the distance was reasonable 57 (33.5%) and that the facilities were accessible 98 (59.4%). There was significant difference in satisfaction regarding distance to the facility (P=0.001) and accessibility of the facility (P=0.277) to the clinic (Table 8). One hundred and sixty six (98.8%) and 164 (98.8%) participants from integrated and non-integrated facilities respectively indicated that it would be convenient if PMTCT and SRH services were offered within the same facility. There was significant difference in satisfaction level between the participants from integrated services and non-integrated service on the convenience of receiving services within the same facility (P<0.001).

	Integrated facilities				Non-integrated facilities				
Clients convinience	n	Median Score (50th percentile)	Agreed No (%)	Disagreed No (%)	n	Median Score (50th percentile)	C No (%)	Disagreed No (%)	P value
I had a place to sit while waiting	167	1	165(98.8)	2(1.2)	166	1	164(98.7)	2(1.3)	1
The distance to the clinic was reasonable	170	3	60(35.4)	110(64.6)	170	2	113(66.5)	57(33.5)	<0.001
There was flexibility in the clinic working hours.	168	1	164(97.6)	4(2.4)	165	1	164(99.4)	1(0.6)	1
The clinic is easily accessible to me	170	3	57(33.7)	113(66.3)	165	3	67(40.6)	98(59.4)	0.028
It is/will be convenient since PMTCT and SRH services will be/ are offered under one roof	170	1	166(98.8)	4(1.2)	166	1	164(98.8)	2(1.2)	<0.001

SD- standard deviation; PMTCT- Prevention of Mother to Child Transmission of HIV; SRH- Sexual and Reproductive Health; HIV- Human Immunodeficiency Virus

Table 7: Comparison of client satisfaction on client convenience in integrated and non-integrated facilities

PARTICIPANTS SATISFACTION WITH TIME SPENT

One hundred and sixty four (97.6%) participants from integrated facilities compared to 164 (99.3%) from non-integrated facilities indicated that they received services within 30 minutes of arrival. Majority from both facilities were also in agreement that the time spent during counselling was sufficient, 164 (97.6%) and 164 (99.4%) from integrated and non-integrated facilities respectively. Majority of the participants disagreed that waiting time was reasonable, 140 (84.1%) from integrated and 137(80.6%) from non-integrated facilities. Majority of the participants also disagreed that it took them a short time to see the counselor, 137 (76.4%) from integrated and 137 (80.6%) from non-integrated facilities. The participants responses on the time taken to serve them during the current session (P=1), reasonable time to get first appointment (P=0.5666), reasonable waiting time for the result

of the baby (P=0.1372), short time to see counselor (P=0.2917) sufficient time spent during counselling session (P= 1) did not differ significantly with the type of facility (Table 9).

	Integrated facilities				Non-integrated facilities				
Time spent by the client	n	Median Score (50th percentile)	Agreed No (%)	Disagree No (%)	n	Median Score (50th percentile)	Agree No (%)	Disagree No (%)	P value
I was attended to within 30 min on arrival	168	1	164(97.6)	4(2.4)	165	1	164(99.3)	1(0.7)	1
I spent reasonable time to get my 1st appointment	169	2	116(68.6)	53(31.4)	164	2	85(53)	78(47)	0.566
Waiting time for my baby HIV test result was reasonable	170	4	30(15.9)	140(84.1)	170	4	33(19.4)	137(80.6)	0.137
It took a short waiting time to see my counsellor	170	3	33(23.5)	137(76.4)	170	4	33(19.4)	137(80.6)	0.292
Time spent with me in session was sufficient	168	1	164(97.6)	4(2.4)	165	1	164(99.4)	1(0.6)	1

SD- standard deviation; PMTCT- Prevention of Mother to Child Transmission of HIV; SRH- Sexual and Reproductive Health; HIV- Human Immunodeficiency Virus

Table 9: Comparison of client satisfaction on time spent on the client in integrated and non-integrated facilities

PARTICIPANTS SATISFACTION WITH COUNSELLORS APPROACH

Over 97% of the participants from both types of facilities agreed on all the statements, ranking high the quality of counseling. There was no significant difference in the participants response on the various statements regarding counselors approach (P=1), apart from statement on counselor summarized main issues discussed with (P=0.5, Table 10).

	Integrated facilities				Non-integrated facilities				
Counsellor approach to counselling	n	Median Score (50th percentile)	Agreed No (%)	Disagreed No (%)	n	Median Score (50th percentile)	Agreed No (%)	Disagreed No (%)	P value
Counsellor greeted me on arrival	170	1	163(97)	7(3)	170	1	165(99.3)	5(0.7)	1
Counsellor introduced him/herself at the start of the session	169	1	165(98.7)	5(3)	166	1	164(98.7)	2(1.2)	1
Counsellor listen actively	170	1	164(97)	6(3)	170	1	165(99.4)	5(0.6)	1
Counsellor summarized main issues discussed	169	1	164(97)	5(3)	166	1	163(99.4)	3(0.6)	0.5
counselling changed my views on HIV and AIDS	170	1	167(98.8)	3(1.2)	170	1	166(97)	4(3)	1
Counsellor repeated and reinforced important information	168	1	166(98.8)	2(1.2)	166	1	163(97)	3(3)	1
Counsellor gave me information in clear and simple terms	170	1	165(97)	5(3)	170	1	169(99.4)	1(0.6)	1
The counsellor made me comfortable talking to him/her	167	1	165(98.8)	2(1.2)	166	1	164(98.8)	2(1.2)	1
I felt confidentiality of my status was guided	167	1	165(98.2)	2(1.8)	166	1	164(98.8)	2(1.2)	1
All qustions were welcomed and were well answered	170	1	165(97)	5(3)	170	1	169(99.4)	1(0.6)	1
I gained new practical guidance on dealing with HIV and AIDS	167	1	165(98.8)	2(1.2)	166	1	164(98.8)	2(1.2)	1
I was given chance to ask all questions that I had	170	1	164(97)	6(3)	170	1	169(99.4)	1(0.6)	1

P value calculated using student t- test; SD- standard deviation; HIV- Human Immunodeficiency Virus; AIDS – Acquired Immunodeficiency Syndrome

Table 10: Comparison of client satisfaction on counselling between integrated and non-integrated facilities

The study compared the overall client satisfaction on the three aspects such as time spent, client convenience and counselor approach with several determinants such including, age, marital status and level of education. The three factors did not significantly affect client satisfaction scores (P<0.05; Table 4.11) although the mean of age of participants 30 years and below was higher on time spent 1.32 (SD; 0.51), client convenience 1.19 (SD; 0.42) and counselor approach 1.21 (SD; 0.45).

	Time spent			Client convenience			Counsellors approach		
Variables	n	Mean±SD	P	n	Mean±SD	P	n	Mean±SD	P
Age									
≤30	158	1.32±0.51	0.47	155	1.19±0.42	0.38	157	1.21±0.45	0.7
>30	175	1.28±0.5		172	1.15±0.41		176	1.19±0.49	
Marital status									
Married	238	1.31±0.51	0.86	233	1.15±0.39	0.08	237	1.17±0.42	0.08
Not Married	73	1.33±0.5		72	1.25±0.52		74	1.28±0.61	
Level of Education									
Lower	142	1.33±0.49	0.38	138	1.15±0.40	0.52	143	1.19±0.39	0.57
Higher	186	1.28±0.52		184	1.18±0.44		186	1.22±0.53	
Facility type									
Integrated	168	1.27±0.49	0.57	167	1.19±0.46	0.27	167	1.19±0.47	0.56
Non-integrated	165	1.33±0.5		160	1.14±0.36		166	1.22±0.47	

Lower education- up to primary; Higher education- secondary, college and university; Not married- single, divorced, separated and widowed; P-value calculated using student t-test.

Table 11: Factors affecting clients satisfaction on counselling and testing services

A comparison of the overall client satisfaction showed that 166 (97.8%) participants from integrated and 168 (98.8%) from non-integrated facilities were satisfied with time spent in the service delivery and that the services and facility were convenient to them, 124 (72.9%) and 137 (80.8%) from integrated and non-integrated facilities respectively. Satisfaction on clients convenience, time spent and counselor approach did not differ significantly between participants from integrated facilities and non-integrated facilities (P=0.1233, P=0.7404 and P=0.270 respectively; Table 12).

Variables		Integrated Facilities	Non integrated facilities	P value
Client convenience	Agree	124 (72.9)	137 (80.8)	0.1233
	Disagree	46(27.1)	33 (19.2)	
Time spent	Agree	103(60.6)	67(39.3)	0.7404
	Disagree	99(58)	71(41.9)	
Counsellor approach	Agree	166(97.8)	168(98.8)	0.6804
	Disagree	4(2.2)	2(1.2)	

P-values calculated using Chi-square test

Table 12: Overall client satisfaction on counselling by PNC mothers in PMTCT program

Perceived better quality counselling sessions in PMTCT program was reported by participants who participated in FGDs from both type of facilities. They reported that the time spent in counselling sessions was sufficient, PMTCT services were free, health providers were knowledgeable and friendly and time spent was reasonable.

BARRIERS TO UPTAKE OF PMTCT AMONG HIV POSITIVE MOTHERS ATTENDING PNC

To identify reasons that hinder HIV positive participants from enrolling for PMTCT, sources of encouragement and support of PNC participants to join PMTCT were identified. Majority of the participants who attended integrated facilitates said they would open up to their partners 61 (36.5%) and to health care providers 55 (32.9%) while participants from non-integrated facilities reported to open up to health care providers 58 (35.6%) and to their partners 44 (27%). There

was no significant difference in the source of encouragement and support of the participants in joining PMTCT program in both type of facilities (P= 0.198; Table 13).

Barriers category	Response	Facility type: Integrated (n) %	Facility type: Non integrated (n) %	P value
Source of encouragement and support by HIV positive mothers on PMTCT				
Partner		61(36.5)	44(27.0)	
mother		23(13,8)	29(17.8)	
Health provider		55(32.9)	58(35.6)	0.198
peer counsellors		19(11.4)	27(16.6)	
Others		9(5.4)	5(3.0)	
Barriers to PMTCT uptake				
Unfriendly health providers	Yes	34(20.0)	49(28.8)	0.058
	No	136(80.0)	121(71.2)	
Time constrains	Yes	40(23.5)	52(30.6)	0.143
	No	130(76.5)	118(69.4)	
Financial implications on PMTCT services	Yes	17(10.0)	5(2.9)	0.008
	No	153(90.0)	(165(97.1)	
Stigma	Yes	122(72.2)	116(68.2)	0.428
	No	47(27.8)	54(31.8)	
Lack of support from the partner	Yes	61(35.9)	111(65.3)	<0.0001
	No	109(64.1)	59(34.7)	

P-value calculated using Chi-square test; PMTCT- Prevention of Mother to Child Transmission of HIV; SRH- Sexual and Reproductive Health; HIV- Human Immunodeficiency Virus

Table 13: Barriers to PMTCT uptake HIV positive mothers attending PNC

The participants shared reasons why HIV positive participants failed to seek PMTCT services. Lack of support from the partner was the most prominent reason among participants from non-integrated facilities, 111 (65.3%) compared to 61 (35.9%) among participants from integrated facilities. Significantly more participants from the integrated facilities lacked partners' support in joining PMTCT program (P< 0.001; Table 13).

In the FGD, participants gave reasons such as denial of their HIV status, fear of knowing their HIV status, partner reactions and lack of confidentiality as reasons for low uptake of PMTCT. They agreed that the solution would be peer counselling and PMTCT services provision in private clinics. Participants in FGD also reported that the community had marginalized HIV infected participants and perceived that they should not have given birth since they would propagate HIV infection. There were also myths that ART and ARV's make PMTCT participants to regain their health and therefore increase the rate of promiscuity. Participants were in agreement that introduction of guidelines allowing HIV positive mothers to breast feed their children have reduced stigma. Participants reported that spousal support has improved but some reported resistance which amounts to threats when partners requested to attend PMTCT services. Despite many challenges experienced by the participants in both types of facilities, one mother commented *'I will always attend PMTCT services in this facility because there is no stigma and discrimination'* a participant from integrated facility. Another one commented that ''*I like this hospital because the staff know me and are friendly, services are fast and there is consistence in management of HIV. 'I don't care about stigma because my health is of paramount''* commented a participants from a non-integrated site.

Twelve key informants (Hospital administrators/PMTCT program manager/ staff) were interviewed on the following areas; (i) Definition and their understanding on integration of PMTCT and SRH services within their facilities, (ii) outcomes of the integration 3) advantages and disadvantages of PMTCT and SRH integration, (iii) gains, challenges of PMTCT and SRH integration and lesson leant. Majority of the participants defined PMTCT/SRH integration as offering the PMTCT and SRH services under one roof and by one healthcare provider within the same site. PMTCT services that were given in the sampled facilities were; HIV testing, follow-up on the mother and child, provision of ARVs and ARTs, health education and collection dry blood slide (DBS). SRH services were antenatal clinic, post-natal clinic, cervical cancer screening, Sexually Transmitted Infections (STIs) detection and treatment and family planning choices.

Outcomes of integration that were reported were; nearly zero infection rate of HIV from mother to the child, reduced stigma through support groups, increased male participation in PMTCT program, high acceptability of ARVs among the participants, defaulter rates reduced by use of case managers, acquisition of new skills by the staff on management of HIV related cases, improved health seeking behaviors within the catchment area and increased uptake of Family Planning (FP). Some setbacks in integration of SRH and PMTCT reported were; high volumes of clients seeking services, increase in waiting time by clients, increase in staff workload resulting to burnout and hence potential compromise on quality of services provided. Majority of the hospital administrators feared that integration implementation would be expensive and cumbersome to the hospital management.

Participants were questioned on barriers encountered and anticipated during integration of PMTCT services with SRH services in their hospital setup at service delivery point. Majority mentioned high workload and inadequate capacity of the staff to handle specialized care 11 (91.7%) followed by shortage of staff 10 (83.3%) as shown in the figure 4.5. One of the PMTCT counselor said 'There *are many women coming here for PMTCT services. We do not have enough staff to provide services for them. How can I counsel all of the hundreds of women who come every day?'* said a PMTCT staff in one of the facilities.

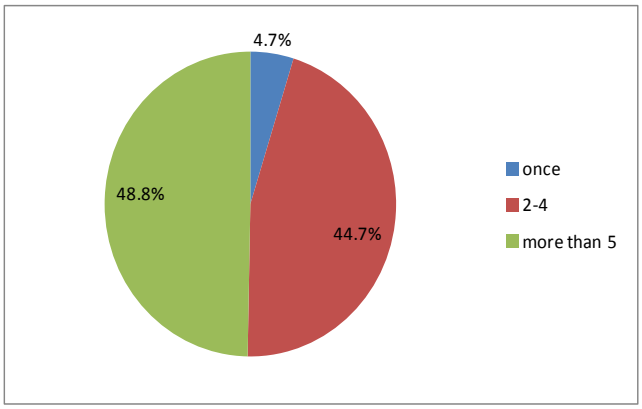

Figure 2: Antenatal attendance among the study participants

Other barriers to integration were lack of knowledge regarding PMTCT and lack of skills to provide counselling. Some PMTCT officers revealed that their knowledge and skills on counselling, ARV prophylaxis and on follow-up care, such as continuing replacement feeding (RF) supplies, infant testing and services for HIV-infected mothers and exposed infants was generally limited. Participants indicated that there

was also inconsistency in provision of drugs and other supplies. One of PMTCT nurses commented *'We know how to protect ourselves against occupational exposure to HIV and we do it very carefully as if we know who is infected. However, even if health workers want to protect themselves by using protective equipment, not all health facilities can provide these means for them'.*

Lessons learnt reported by Key informants on PMTCT/SRH integration were; early communication and follow-up of the clients using case managers, creating many entry points to the health facilities to facilitate PMTCT and SRH services uptake, working with peer support program to encourage HIV testing and counselling, follow-up and stigma reduction among PMTCT clients and facilitation of private health facilities by the government to offer free PMTCT and SRH services to enhanced linkages for better uptake and follow-up of PMTCT clients. Figure 3 shows various barriers to integration of SRH and PMTCT services.

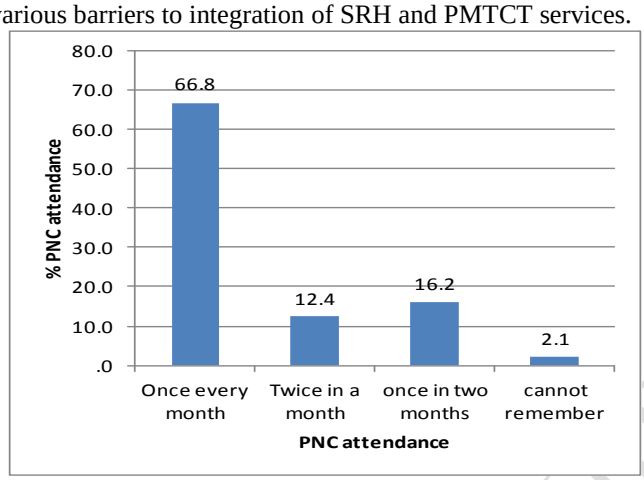

Figure 3: Post-Natal Clinic Attendance among the HIV infected mothers attending PNC

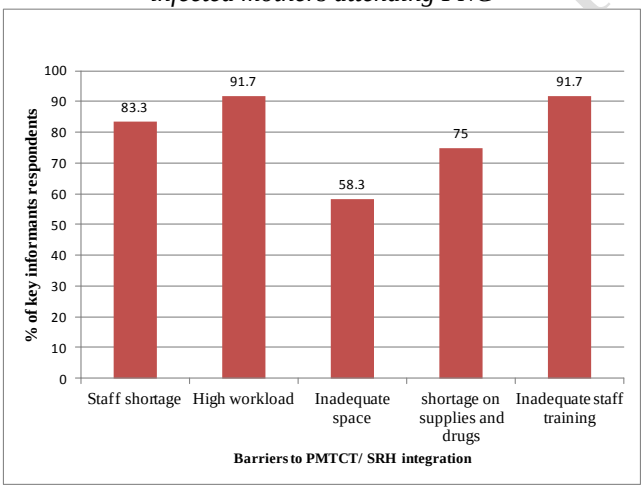

Figure 4: Challenges in PMTCT integration

IV. CONCLUSION

- ✓ Overall prevalence of HIV among the exposed children was 1.5%. Integration of PMTCT and SRH services in both types of the facilities enabled access and hence increased uptake of the PMTCT services. However, integration of SRH services into PMTCT program did not avert vertical transmission of HIV.
- ✓ Quality of counselling was highly scored by participants from both types of facilities. One on one method of counselling methodology conducted in non-integrated facilities impacted on their increased knowledge on MTCT and PMTCT compared to PNC mothers from integrated facilities. Distance and access to the health facilities were reported to hinder convenience of the participants to access integrated facilities.
- ✓ Inadequate staff training, high workload and shortage of staff were identified as barriers to PMTCT/SRH services integration. Lack of partner support and stigma were reported to be hindrances to PMTCT uptake among participants in non-integrated facilitiesAlthough the prevalence of HIV of HIV among exposed children in integrated facilities was higher, 1.8% compared to 1.2% in non-integrated facilities, there was no significant difference.

REFERENCES

[1] Abiodun, M., Ijaiya, M., Aboyeji, P (2007). Awareness and Knowledge of Mother-to-Child Transmission of HIV among Pregnant Women. Journal of National Medical Association, 99(7): 758-763.

[2] Katherine, L (2008). Mother-to-child transmission (MTCT) of persistent viral infections: pathogenesis and prevention. Pediatrics and Molecular Medicine, University of Massachusetts Medical School, Worcester, MA, USA.[Published online: 9 April 2008].

[3] Kenya National Bureau of Statistics (KNBS) and ICF Macro (2010). Kenya Demographic and Health Survey 2008–09. Calverton, Maryland: KNBS and ICF Macro. Available from: http://www.measuredhs.com/pubs/pdf/fr229/fr229.pdf. Accessed May 26, 2013.

[4] National AIDS and STI Control Programme (2012). Kenya AIDS Indicator Survey, Final Report, Ministry of Health, Kenya. Available from: http://www.nascop.or.ke.

[5] Nduati,R., Mbori-Ngacha,D., Kalibala,S., Ogola,S., Oyieke,J. (2014) Efficacy of PMTCT services in routine care settings. International AIDS conference. Abstract no.B12044.

[6] UNAIDS (2010). Global report: UNAIDS report on the global AIDS epidemic.

[7] UNAIDS (2012). Towards Universal Access: Scaling Up Priority HIV/AIDS Interventions in the Health Sector Progress Report 2010. Available at: http://www.who.int/hiv/pub/2010progressreport/report/en/index.html. Accessed May 26, 2012.